#146

OPERATORS MANUAL

For Rico Models RS-4, RS-6 & RS-5X

RICO®
SUCTION

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(6)

RICO®

SUCTION

CERTIFICATE

Rico Suction Labs, Inc. hereby Certifies that the Rico Suction Units - Model RS-4 and Model RS-6, with the Rico Ready-To-Use Kit and the Rico Suction Rinsing Water Bottle, meet the applicable Requirements of Federal specification KKK-A-1822C, paragraph 3.12.3, FOR ENGINE VACUUM.

The Rico Throat Catheter Handle, which we furnish with our Throat Catheter Kit and Ready - To - Use Kit, incorporates the Y connector for Tracheal Suctioning.

We do not furnish the following items which are required by Federal Specifications for Engine Vacuum: vacuum tank with check valve (Reservoir Chamber). Vacuum plug in, self sealing valve connection (plug in outlet) can be furnished at additional cost.

Our Electric Vacuum Pumps comply with Federal Specifications for Vacuum and Air Flow.

PERFORMANCE

Rico Suction Model RS-4 and Model RS-6 when used with Vacuum of Ambulance Engine:

		Metric
Time to reach 380 mm Hg.	* 2.5 - 3 sec.	
Vacuum Gauge Error	* ± 2.4%	
Maximum Free Air Flow	* 30 - 35 LPM	
Maximum Vacuum	* 13" - 18" Hg.	330.2 - 457.20 mm Hg.

Rico Suction Model RS-6 when used manually, and Model RS-5X:

Time to reach 380 mm Hg.	* 2.4 sec.	
Vacuum Gauge Error	* ± 2.4%	
Maximum Free Air Flow	* 38 LPM	
Maximum Vacuum	* 27.8" Hg.	706.12 mm Hg.
Cubic Inch Displacement Per Stroke	* 12.75 Cu. In.	208.93 cu. cm

*This exceeds all published requirements for Vacuum and Air Flow.

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FOREWORD

I. Rico Suction Labs, Inc. is the original pioneer in the field of Emergency Medical Aspirators for ambulance use. Rico Aspirators have been in commercial use on ambulances in the United States since 1952 and are now used throughout the world.

Through extensive research and practical field experience, Rico Aspirators are un-excelled in simplicity and dependability.

The Rico Aspirator is a precision, custom made instrument, machined to exacting standards to provide the most reliable, dependable and versatile aspirator available. Each Rico Aspirator must pass the most rigid quality control standards before shipment.

II. OPERATION.

Upon receiving your Rico Aspirator, you should thoroughly familiarize yourself with its "ready to operate" appearance. By doing this, you may at a glance recognize any gross defect which would affect the proper operation.

A. Rico RS-4, Fixed Aspirator and Rico RS-6 Fixed/Portable Aspirator

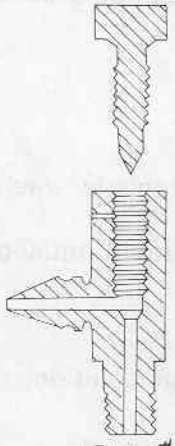


FIG. #1

1. Engine operated (standard On/Off Regulator Valve)
   a. Off Mode—On/Off Regulator Valve (knurled knob) completely closed **(clockwise rotation). Figure 1 and Figure 3 ***
   b. Maximum vacuum mode—open (counter-clockwise rotation) On/Off Regulator Valve (knurled knob) ¼ to ½ turn.
   c. Regulated mode—open (counter-clockwise rotation) On/Off Regulator Valve (knurled knob) approximately 3 turns or until bleeder valve is activated. Adjust to desired setting (see figure 1).

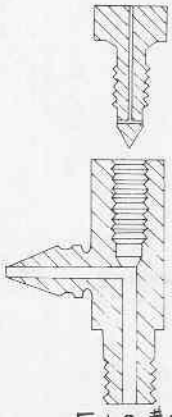


FIG. #2

2. Electric vacuum pump operated. (optional Regulator Valve-electric pump only).
   a. Off Mode, electrical switch to electric vacuum pump in "off" position.
   b. Maximum vacuum Mode, electrical switch to electric vacuum pump in "on" position. Completely close (clockwise rotation) Regulator Valve (knurled knob).
   c. Regulated Mode, open (counter-clockwise rotation) Regulator Valve (knurled knob) until bleeder valve is activated. Adjust to desired setting (see figure 2).

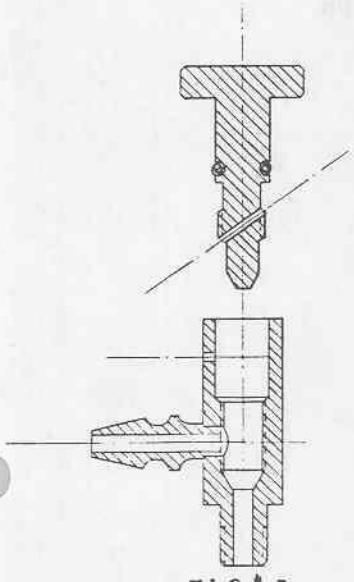


FIG. #3

3. Manual pump operated (standard On/Off Regulator Valve).
   a. Disconnect any other vacuum power source and connect manual pump vacuum line at quick disconnect junction.
   b. Off Mode, refer to II.,A.,1.,a. above
   c. Maximum vacuum Mode, refer to II.,A.,1.,c. above. An alternate regulating method is to vary the stroke speed of the double action, manually operated pump.

***All units manufactured after 1/1/89 use valve shown in figure 3.**

III. CLEANING

A. Decontamination/Sterilization, all models

1. Lucite vacuum container (bottle) with Rico Sani-Liner

   a. Remove Sani-Liner from vacuum bottle, pour contents into a suitable sewage drain.

   b. Discard used Sani-Liner in proper manner.

   c. Wash vacuum container (bottle) with warm soapy water. Follow this by washing with 70% isopropyl alcohol, sporicidin® solution or other suitable antiseptic solution.

   d. Do not use abrasive pads, abrasive powder cleaners or antiseptic solutions containing phenol, other organic solvents or steam autoclave.

2. Lucite vacuum container (bottle)

   a. Follow instructions in III.,A.,1.,c. and d. above.

IV. TROUBLE SHOOTING

A. Engine operated, Rico RS-4 and Rico RS-6

1. No vacuum.

   a. Check vacuum line coupler for proper hook-up.

   b. Listen for hissing sound. Possible hole in vacuum line or broken line.

   c. Check for crimp in vacuum line.

   d. Check for stuck check valve at vacuum reservoir.

   e. Check for proper vacuum line connection on intake manifold.

   f. Rico Sani-Liner against vacuum outlet.

2. Partial vacuum.

   a. Listen for hissing sound, possible hole in vacuum line.

   b. Vacuum container (bottle) top not properly sealed.

   c. Vacuum line coupler loose.

   d. Rico Sani-Liner against vacuum outlet.

   e. Rico Sani-Liner caught between "o" ring and top of bottle.

3. Vacuum in vacuum container (bottle) but no suction.

   a. Check for foreign matter in patient hose or catheter.

   b. Check for crimp in patient hose.

B. Electric vacuum pump operated, Rico RS-4 and Rico RS-6

1. No vacuum

   a. Follow instructions in IV.,A.,1.,a.,b.,c. and f.

   b. Check exhaust port on vacuum pump for obstruction or stuck valve.

2. Partial vacuum

   a. Follow instructions in IV.,A.,2.,a.,b.,c.,d. & e.

3. Vacuum in Aspirator but no suction.

   a. Follow instructions in IV.,A.,3.,a. and b.

C. Manual pump operated, Rico RS-6 and Rico RS-5X

1. No vacuum

   a. Follow instructions in IV.,A.,1.,a.,b.,c. & f.

   b. Check pump for stuck valves.

2. Partial vacuum

   a. Follow instructions in IV.,A.,2.,a.,b.,c.,d. & e.

3. Vacuum in Aspirator but no suction

   a. Follow instructions in IV.,A.,3.,a. & b.

V. ASSEMBLY/DISASSEMBLY. Starting point in instructions (all units) will be completely disassembled.

A. RS-4—engine operated

1. Using frame (1) as template mark holes to be drilled and drill in mounting site.

2. Attach frame pan (2) to frame (1) with machine screw (furnished).

3. Attach regulator valve (6) to vacuum container top (4) and secure on bottom side with flat nut (furnished).

4. Attach vacuum gauge (7) to vacuum container top (4) by screwing into threaded hole. Face should point forward, hand tighten only.

5. Attach patient hose stem (8) to vacuum container top (4) by screwing into threaded hole.
6. Slide "O" ring gasket (5) into groove of vacuum container top (4)
7. Slide patient hose spring (9) over one end of patient hose (10)
8. Attach patient hose (10) over nipple of patient hose stem (8).
9. Slide end of patient hose spring (9) over patient hose (10) and patient hose stem (8) using a twisting motion.
10. Attach short section vacuum hose (21a) to regulator valve nipple (6).
11. Attach quick disconnect, female end (20) to other end of short section vacuum hose (21A).
12. Attach quick disconnect, male end (19) to one end of long section vacuum hose (21B).
13. Attach other end long section vacuum hose (21B) to vacuum source.
14. Slide one hole in Rico Sani-Liner (11) over bottom portion of patient hose stem (8), place into vacuum container (3), square vacuum container top (4) and set into place on vacuum container (3).
15. Assemble hold-down swivel (12) by screwing stem portion through hole in frame (1) and attach swivel to bottom end.
16. Place completely assembled vacuum container on frame pan (2) and secure with hold-down swivel (12).
17. To disassemble reverse above steps.

B. RS-6—engine, electric or manual pump operated.

1. Place base plate (13) in position for mounting, using mounting bracket (14) as a template, mark and drill holes.
2. Attach frame (1) to base plate (13) (screws furnished)
3. Attach manual pump (15) to base plate (13) (screws furnished)
4. Make sure vacuum valves (16A & 16B) are in place and tight.
5. Assemble "Y" connector assembly (17) using three short pieces of hose (18)
6. Slide each hose end (18) of straightest "Y" section (18) over inlet valve nipple (16A). Attach quick disconnect (19) male end to remaining loose hose end (18).

7. Assemble hold-down swivel (12) by screwing stem portion through hole in mounting bracket (14) and attach swivel to bottom end.
8. Follow Section V.,A., steps 2 through 14 and step 16 to complete assembly.
9. To disassemble reverse the above steps.

C. RS-5X—manual operation only.

1. Follow section V.,B., steps 1 through 7 and section V.,A., steps 1,2,3,5,6,7,8,9,10,11,14,15 and 16.
2. To disassemble reverse above steps.

NOTE: RS-5X vacuum container head (top) (not pictured) is a two hole model and does not carry a vacuum gauge or regulator valve.

D. Quick Disconnect Wall Mount (optional)

Quick Disconnect Wall Mount consists of three parts:

1. Wall plate (22).
2. Vacuum container frame plate (22).
3. Safety lock (23)

To use, attach wall plate to wall and frame plate to frame, mate the two sections and secure with safety lock.

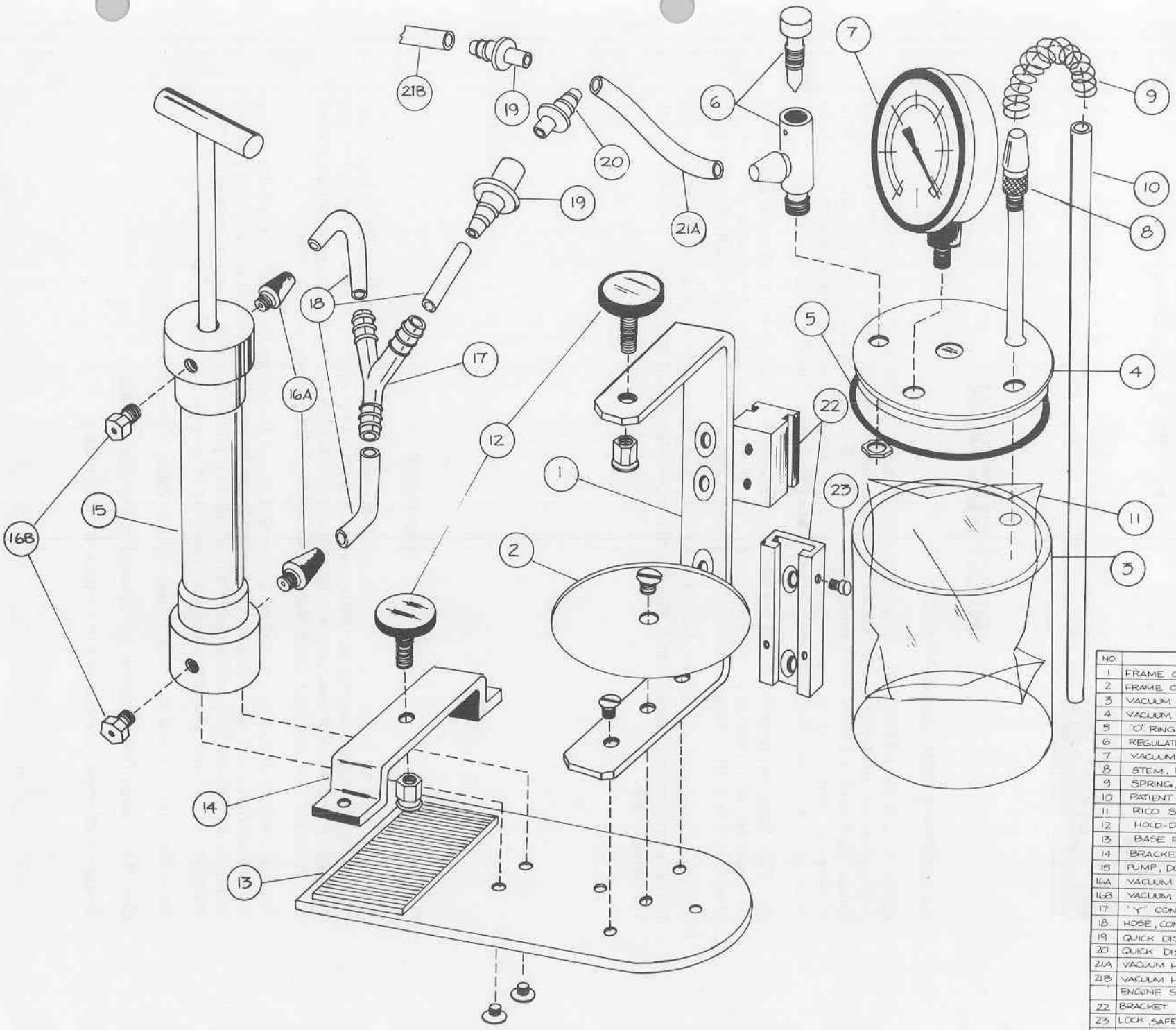
This optional equipment is only necessary with the RS-6 if wall mounted.

VI. PARTS LIST

A. RS-4, RS-6, RS-5X & Rail Mount/Wall Mount (special order)

No.	PART NAME
1	FRAME OR BRACKET
2	FRAME OR BRACKET PAN
3	VACUUM CONTAINER (BOTTLE) 2500 cc
4	VACUUM CONTAINER HEAD (TOP)
5	"O" RING GASKET
6	REGULATOR VALVE
7	VACUUM GAUGE

No.	NAME
8	STEM, PATIENT HOSE
9	SPRING, PATIENT HOSE
10	PATIENT HOSE 5' × ¼" ID.
11	RICO SANI-LINER
12	HOLD-DOWN, SWIVEL
13	BASE PLATE RS-6
14	BRACKET, MOUNTING RS-6
15	PUMP, DOUBLE ACTION VACUUM
16A	VACUUM VALVE, INLET
16B	VACUUM VALVE, OUTLET
17	"Y" CONNECTOR, INLET VALVES
18	HOSE, CONNECTING, INLET VALVES
19	QUICK DISCONNECT, MALE END
20	QUICK DISCONNECT, FEMALE END
21A	VACUUM HOSE, BOTTLE CONNECTION
21B	VACUUM HOSE, ELECTRIC PUMP OR ENGINE SOURCE 16' × ¼" ID.
22	BRACKET, PORTABLE WALL (OPTIONAL)
23	LOCK, SAFETY, WALL MOUNT



NO.	PART NAME
1	FRAME OR BRACKET
2	FRAME OR BRACKET PAN
3	VACUUM CONTAINER (BOTTLE)
4	VACUUM CONTAINER HEAD (TOP)
5	"O" RING GASKET
6	REGULATOR VALVE
7	VACUUM GAUGE
8	STEM, PATIENT HOSE
9	SPRING, PATIENT HOSE
10	PATIENT HOSE 5' × 1/4" ID
11	RICO SANI-LINER
12	HOLD-DOWN, SWIVEL
13	BASE PLATE R5-6
14	BRACKET, MOUNTING R5-6
15	PUMP, DOUBLE ACTION VACUUM
16A	VACUUM VALVE, INLET
16B	VACUUM VALVE, OUTLET
17	"Y" CONNECTOR, INLET VALVES
18	HOSE, CONNECTING, INLET VALVES
19	QUICK DISCONNECT, MALE END
20	QUICK DISCONNECT, FEMALE END
21A	VACUUM HOSE, BOTTLE CONNECTION
21B	VACUUM HOSE, ELECTRIC PUMP OR ENGINE SOURCE 10' × 1/4" ID
22	BRACKET, PORTABLE WALL (OPTIONAL)
23	LOCK, SAFETY, WALL MOUNT

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RICO SUCTION

EMERGENCY MEDICAL ASPIRATORS

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The Rico Suction Systems are of the very best quality. They are used as Original Equipment by Leading Manufacturers of Emergency Vehicles. These Units are available from the Manufacturers, their Distributors, Emergency Equipment and Medical Supply Companies.

For the information of the End User of our equipment, we enclose our Catalog and Operators Manual with every Aspirator unit, which include our Warranty, Parts List, Certificate, and Performance Data.

WARRANTY

The Rico Suction Labs, Inc. Warrants the Rico Suction Systems and Rico Parts to be free from defects in Material and Workmanship for a period of two years. If repair or adjustment is necessary and has not been the results of abuse or misuse within the two year period please return freight prepaid and correction of the defect will be made without charge.

Electric motors and vacuum pumps will be warranted according to the policies of the motor and pump manufacturer. For your protection items being returned must be carefully packed to prevent damage in shipment and insured against possible damage or loss. We will not be responsible for damage resulting from careless or insufficient packaging.

Maximum liability is in no case to exceed the value of the unit involved.

Out-of-Warranty products will be repaired at nominal charge.

Design and prices are subject to change without notice.